



Complete Summary

TITLE

Maternity care: Cesarean delivery rate.

SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

AHRQ quality indicators. Inpatient quality indicators: technical specifications [version 3.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Feb 29. 37 p.

Measure Domain

PRIMARY MEASURE DOMAIN

Use of Services

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

SECONDARY MEASURE DOMAIN

Does not apply to this measure

Brief Abstract

DESCRIPTION

This measure is used to assess the number of provider-level Cesarean deliveries per 100 deliveries.

Potential additional bias may result from clinical differences not identifiable in administrative data, so supplemental risk adjustment with linked birth records or other clinical data may be desirable. As a utilization indicator, the construct validity relies on the actual inappropriate use of procedures in hospitals with high rates, which should be investigated further.

RATIONALE

About 30% of personal health care expenditures in the United States go towards hospital care, and the rate of growth in spending for hospital services has only recently leveled out after several years of increases following a half a decade of declining growth. Simultaneously, concerns about the quality of health care services have reached a crescendo with the Institute of Medicine's series of reports describing the problem of medical errors and the need for a complete restructuring of the health care system to improve the quality of care. Policymakers, employers, and consumers have made the quality of care in U.S. hospitals a top priority and have voiced the need to assess, monitor, track, and improve the quality of inpatient care.

Cesarean delivery is the most common operative procedure performed in the United States and is associated with higher costs than vaginal delivery. Despite a recent decrease in the rate of Cesarean deliveries, many organizations have aimed to monitor and reduce the rate. Cesarean delivery has been identified as an overused procedure.

The overall Cesarean delivery rate cannot determine appropriate use, but the variation in rates across institutions and regions may, if the variations do not merely reflect variations in patient disease severity and comorbidities.

Note:

The following caveats were identified from the literature review for the "Cesarean Delivery Rate" indicator:

- *Confounding bias^a*: Patient characteristics may substantially affect the performance of the indicator; risk adjustment is recommended.
- *Unclear construct^a*: There is uncertainty or poor correlation with widely accepted process measures.
- *Unclear benchmark^a*: The "correct rate" has not been established for the indicator; national, regional, or peer group averages may be the best benchmark available.

Refer to the original measure documentation for further details.

a - The concern is theoretical or suggested, but no specific evidence was found in the literature.

PRIMARY CLINICAL COMPONENT

Maternity care; Cesarean delivery

DENOMINATOR DESCRIPTION

All deliveries

Exclude cases:

- Abnormal presentation, preterm, fetal death, multiple gestation diagnosis codes
- Breech procedure codes

Note: Refer to the Technical Specifications document for specific Diagnosis-Related Groups (DRGs) codes.

NUMERATOR DESCRIPTION

Number of Cesarean deliveries, identified by Diagnosis-Related Group (DRG), or by International Classification of Diseases, Nine Revision, Clinical Modification (ICD-9-CM) procedure codes* if they are reported without a 7491 hysterotomy procedure, among cases meeting the inclusion and exclusion rules for the denominator

*Refer to the Technical Specifications document for specific ICD-9-CM codes and DRGs.

Evidence Supporting the Measure

EVIDENCE SUPPORTING THE VALUE OF MONITORING USE OF SERVICE

- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Monitoring and planning
Variation in use of service

EVIDENCE SUPPORTING NEED FOR THE MEASURE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

External oversight/State government program
Monitoring and planning

Application of Measure in its Current Use

CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Physicians

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

Unspecified

TARGET POPULATION GENDER

Female (only)

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

The rate of Cesarean delivery in the United States increased from 5.5% in 1970 to a high of 24.7% in 1988 and decreased to 20.7% in 1996.

EVIDENCE FOR INCIDENCE/PREVALENCE

Menard MK. Cesarean delivery rates in the United States. The 1990s. Obstet Gynecol Clin North Am 1999 Jun;26(2):275-86. [24 references] [PubMed](#)

ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

BURDEN OF ILLNESS

Unspecified

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Not within an IOM Care Need

IOM DOMAIN

Not within an IOM Domain

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

All deliveries (see the "Denominator Inclusions/Exclusions" field)

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions

All deliveries

Note: Refer to the Technical Specifications document for specific Diagnosis-Related Groups (DRGs) codes.

Exclusions

Exclude cases:

- Abnormal presentation, preterm, fetal death, multiple gestation diagnosis codes
- Breech procedure codes

RELATIONSHIP OF DENOMINATOR TO NUMERATOR

All cases in the denominator are not equally eligible to appear in the numerator

DENOMINATOR (INDEX) EVENT

Clinical Condition
Institutionalization
Therapeutic Intervention

DENOMINATOR TIME WINDOW

Time window is a single point in time

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions

Number of Cesarean deliveries, identified by Diagnosis-related Group (DRG), or by International Classification of Diseases, Nine Revision, Clinical Modification (ICD-9-CM) procedure codes* if they are reported without a 7491 hysterotomy procedure, among cases meeting the inclusion and exclusion rules for the denominator

*Refer to the Technical Specifications document for specific ICD-9-CM codes and DRGs.

Exclusions

Unspecified

MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

NUMERATOR TIME WINDOW

Institutionalization

DATA SOURCE

Administrative data

LEVEL OF DETERMINATION OF QUALITY

Does not apply to this measure

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Undetermined

ALLOWANCE FOR PATIENT FACTORS

Analysis by subgroup (stratification on patient factors, geographic factors, etc.)

DESCRIPTION OF ALLOWANCE FOR PATIENT FACTORS

Observed (raw) rates may be stratified by hospitals, age groups, race/ethnicity categories, and payer categories.

Risk adjustment by age is recommended.

Application of multivariate signal extraction (MSX) to smooth risk adjusted rates is also recommended.

STANDARD OF COMPARISON

External comparison at a point in time

External comparison of time trends

Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Each potential quality indicator was evaluated against the following six criteria, which were considered essential for determining the reliability and validity of a quality indicator: face validity, precision, minimum bias, construct validity, fosters real quality improvement, and application. The project team searched Medline for articles relating to each of these six areas of evaluation. Additionally, extensive empirical testing of all potential indicators was conducted using the 1995-97 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and Nationwide Inpatient Sample (NIS) to determine precision, bias, and construct validity. Table 2 in the original measure documentation summarizes the results of the literature review and empirical evaluations on the Inpatient Quality Indicators. Refer to the original measure documentation for details.

EVIDENCE FOR RELIABILITY/VALIDITY TESTING

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

Identifying Information

ORIGINAL TITLE

Cesarean delivery rate (IQI 21).

MEASURE COLLECTION

MEASURE SET NAME

[Agency for Healthcare Research and Quality \(AHRQ\) Inpatient Quality Indicators](#)

DEVELOPER

Agency for Healthcare Research and Quality

FUNDING SOURCE(S)

Agency for Healthcare Research and Quality (AHRQ)

COMPOSITION OF THE GROUP THAT DEVELOPED THE MEASURE

The Agency for Healthcare Research and Quality (AHRQ) Quality Indicators are in the public domain and the specifications come from multiple sources, including the published and unpublished literature, users, researchers, and other organizations. AHRQ as an agency is responsible for the content of the indicators.

FINANCIAL DISCLOSURES/OTHER POTENTIAL CONFLICTS OF INTEREST

None

ADAPTATION

Cesarean delivery was included in the original Healthcare Cost and Utilization Project Quality Indicators (HCUP QIs).

PARENT MEASURE

Cesarean section delivery (Agency for Healthcare Research and Quality)

RELEASE DATE

2002 Jun

REVISION DATE

2008 Feb

MEASURE STATUS

This is the current release of the measure.

This measure updates previous versions:

- AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 3.0]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2006 Feb 20. 99 p.
- AHRQ quality indicators. Inpatient quality indicators: technical specifications [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 37 p.

SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

AHRQ quality indicators. Inpatient quality indicators: technical specifications [version 3.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Feb 29. 37 p.

MEASURE AVAILABILITY

The individual measure, "Cesarean Delivery Rate (IQI 21)," is published in "AHRQ Quality Indicators. Guide to Inpatient Quality Indicators: Quality of Care in Hospitals -- Volume, Mortality, and Utilization" and "AHRQ Quality Indicators. Inpatient Quality Indicators: Technical Specifications." These documents are available in Portable Document Format (PDF) from the [Inpatient Quality Indicators Download](#) page at the Agency for Healthcare Research and Quality (AHRQ) Quality Indicators Web site.

For more information, please contact the QI Support Team at support@qualityindicators.ahrq.gov.

COMPANION DOCUMENTS

The following are available:

- AHRQ quality indicators. Inpatient quality indicators: software documentation, SAS [version 3.2]. 2008 Mar 10: Agency for Healthcare Research and Quality (AHRQ); 2008 Mar 10. 43 p. This document is available in Portable Document Format (PDF) from the [Agency for Healthcare Research and Quality \(AHRQ\) Quality Indicators Web site](#).
- AHRQ quality indicators. Software documentation: Windows [version 3.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Mar 10. 99 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- Inpatient quality indicators (IQI): covariates, version 3.1. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 29 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- Inpatient quality indicators (IQI): covariates (with POA), version 3.1. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 29 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).

- Remus D, Fraser I. Guidance for using the AHRQ quality indicators for hospital-level public reporting or payment. Rockville (MD): Agency for Healthcare Research and Quality; 2004 Aug. 24 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- AHRQ summary statement on comparative hospital public reporting. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2005 Dec. 1 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- Guidance for using the AHRQ quality indicators for public reporting or payment - appendix A: current uses of AHRQ quality indicators and considerations for hospital-level reporting. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2005 Dec. A1-13 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- Guidance for using the AHRQ quality indicators for public reporting or payment - appendix B: public reporting evaluation framework--comparison of recommended evaluation criteria in five existing national frameworks. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2005 Dec. B1-4 p. This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- AHRQ inpatient quality indicators - interpretive guide. Irving (TX): Dallas-Fort Worth Hospital Council Data Initiative; 2002 Aug 1. 9 p. This guide helps you to understand and interpret the results derived from the application of the Inpatient Quality Indicators software to your own data and is available in PDF from the [AHRQ Quality Indicators Web site](#).
- UCSF-Stanford Evidence-based Practice Center. Davies GM, Geppert J, McClellan M, et al. Refinement of the HCUP quality indicators. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2001 May. 24 p. (Technical review; no. 4). This document is available in PDF from the [AHRQ Quality Indicators Web site](#).
- HCUPnet. [internet]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 [accessed 2007 May 21]. [Various pagings]. HCUPnet is available from the [AHRQ Web site](#). See the related [QualityTools](#) summary.

NQMC STATUS

This NQMC summary was completed by ECRI on February 3, 2006. The information was verified by the measure developer on March 6, 2006. This NQMC summary was updated by ECRI Institute on May 29, 2007 and again on October 20, 2008.

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